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☐ 1: NM\_005099. Homo sapiens a di...[gi:41327755]

LOCUS NM\_005099 4342 bp mRNA linear PRI 26-JAN-2004

DEFINITION Homo sapiens a disintegrin-like and metalloprotease (reprolysin type) with thrombospondin type 1 motif, 4 (ADAMTS4), mRNA.

ACCESSION NM\_005099

VERSION NM\_005099.3 GI:41327755

KEYWORDS .

SOURCE Homo sapiens (human)

ORGANISM Homo sapiens  
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

REFERENCE 1 (bases 1 to 4342)

AUTHORS Clark,H.F., Gurney,A.L., Abaya,E., Baker,K., Baldwin,D., Brush,J., Chen,J., Chow,B., Chui,C., Crowley,C., Currell,B., Deuel,B., Dowd,P., Eaton,D., Foster,J., Grimaldi,C., Gu,Q., Hass,P.E., Heldens,S., Huang,A., Kim,H.S., Klimowski,L., Jin,Y., Johnson,S., Lee,J., Lewis,L., Liao,D., Mark,M., Robbie,E., Sanchez,C., Schoenfeld,J., Seshagiri,S., Simmons,L., Singh,J., Smith,V., Stinson,J., Vagts,A., Vandlen,R., Watanabe,C., Wieand,D., Woods,K., Xie,M.H., Yansura,D., Yi,S., Yu,G., Yuan,J., Zhang,M., Zhang,Z., Goddard,A., Wood,W.I., Godowski,P. and Gray,A.

TITLE The secreted protein discovery initiative (SPDI), a large-scale effort to identify novel human secreted and transmembrane proteins: a bioinformatics assessment

JOURNAL Genome Res. 13 (10), 2265-2270 (2003)

PUBMED 12975309

REFERENCE 2 (bases 1 to 4342)

AUTHORS Wang,W.M., Lee,S., Steiglitiz,B.M., Scott,I.C., Lebares,C.C., Allen,M.L., Brenner,M.C., Takahara,K. and Greenspan,D.S.

TITLE Transforming growth factor-beta induces secretion of activated ADAMTS-2. A procollagen III N-proteinase

JOURNAL J. Biol. Chem. 278 (21), 19549-19557 (2003)

PUBMED 12646579

REMARK GeneRIF: ADAMTS-2 metalloproteinase is shown to cleave procollagen III N-propeptides as effectively as those of procollagens I and II

REFERENCE 3 (bases 1 to 4342)

AUTHORS Flannery,C.R., Zeng,W., Corcoran,C., Collins-Racie,L.A., Chockalingam,P.S., Hebert,T., Mackie,S.A., McDonagh,T., Crawford,T.K., Tomkinson,K.N., LaVallie,E.R. and Morris,E.A.

TITLE Autocatalytic cleavage of ADAMTS-4 (Aggrecanase-1) reveals multiple glycosaminoglycan-binding sites

JOURNAL J. Biol. Chem. 277 (45), 42775-42780 (2002)

PUBMED 12202483

REMARK GeneRIF: Autocatalytic cleavage reveals multiple glycosaminoglycan-binding sites

REFERENCE 4 (bases 1 to 4342)

AUTHORS Malfait,A.M., Liu,Q., Ijiri,K., Komiya,S. and Tortorella,M.D.

TITLE Inhibition of ADAM-TS4 and ADAM-TS5 prevents aggrecan degradation in osteoarthritic cartilage

JOURNAL J. Biol. Chem. 277 (25), 22201-22208 (2002)  
PUBMED [11956193](#)  
REMARK GeneRIF: Inhibition of ADAM-TS4 and ADAM-TS5 prevents aggrecan degradation in osteoarthritic cartilage.

REFERENCE 5 (bases 1 to 4342)  
AUTHORS Westling,J., Fosang,A.J., Last,K., Thompson,V.P., Tomkinson,K.N., Hebert,T., McDonagh,T., Collins-Racie,L.A., LaVallie,E.R., Morris,E.A. and Sandy,J.D.  
TITLE ADAMTS4 cleaves at the aggrecanase site (Glu373-Ala374) and secondarily at the matrix metalloproteinase site (Asn341-Phe342) in the aggrecan interglobular domain

JOURNAL J. Biol. Chem. 277 (18), 16059-16066 (2002)  
PUBMED [11854269](#)  
REMARK GeneRIF: has a specific cleavage site at the matrix metalloproteinase site in its interglobular domain

REFERENCE 6 (bases 1 to 4342)  
AUTHORS Gao,G., Westling,J., Thompson,V.P., Howell,T.D., Gottschall,P.E. and Sandy,J.D.  
TITLE Activation of the proteolytic activity of ADAMTS4 (aggrecanase-1) by C-terminal truncation

JOURNAL J. Biol. Chem. 277 (13), 11034-11041 (2002)  
PUBMED [11796708](#)  
REMARK GeneRIF: activation of proteolytic activity by C-terminal truncation

REFERENCE 7 (bases 1 to 4342)  
AUTHORS Yamanishi,Y., Boyle,D.L., Clark,M., Maki,R.A., Tortorella,M.D., Arner,E.C. and Firestein,G.S.  
TITLE Expression and regulation of aggrecanase in arthritis: the role of TGF-beta

JOURNAL J. Immunol. 168 (3), 1405-1412 (2002)  
PUBMED [11801682](#)  
REMARK GeneRIF: Aggrecanase-1 is expressed by fibroblast-like synoviocytes from rheumatoid arthritis and osteoarthritis patients and is induced by cytokines, especially TGF-beta.

REFERENCE 8 (bases 1 to 4342)  
AUTHORS Hirohata,S.  
TITLE ADAMTS family--new extracellular matrix degrading enzyme

JOURNAL Seikagaku 73 (11), 1333-1337 (2001)  
PUBMED [11831030](#)  
REMARK GeneRIF: extracellular matrix degrading enzyme

REFERENCE 9 (bases 1 to 4342)  
AUTHORS Nakamura,H., Fujii,Y., Inoki,I., Sugimoto,K., Tanzawa,K., Matsuki,H., Miura,R., Yamaguchi,Y. and Okada,Y.  
TITLE Brevican is degraded by matrix metalloproteinases and aggrecanase-1 (ADAMTS4) at different sites

JOURNAL J. Biol. Chem. 275 (49), 38885-38890 (2000)  
PUBMED [10986281](#)

REFERENCE 10 (bases 1 to 4342)  
AUTHORS Tortorella,M., Pratta,M., Liu,R.Q., Abbaszade,I., Ross,H., Burn,T. and Arner,E.  
TITLE The thrombospondin motif of aggrecanase-1 (ADAMTS-4) is critical for aggrecan substrate recognition and cleavage

JOURNAL J. Biol. Chem. 275 (33), 25791-25797 (2000)  
PUBMED [10827174](#)

REFERENCE 11 (bases 1 to 4342)  
AUTHORS Matthews,R.T., Gary,S.C., Zerillo,C., Pratta,M., Solomon,K., Arner,E.C. and Hockfield,S.  
TITLE Brain-enriched hyaluronan binding (BEHAB)/brevican cleavage in a glioma cell line is mediated by a disintegrin and metalloproteinase with thrombospondin motifs (ADAMTS) family member

JOURNAL J. Biol. Chem. 275 (30), 22695-22703 (2000)  
PUBMED [10801887](#)  
REFERENCE 12 (bases 1 to 4342)  
AUTHORS Tortorella,M.D., Pratta,M., Liu,R.Q., Austin,J., Ross,O.H.,  
Abbaszade,I., Burn,T. and Arner,E.  
TITLE Sites of aggrecan cleavage by recombinant human aggrecanase-1  
(ADAMTS-4)  
JOURNAL J. Biol. Chem. 275 (24), 18566-18573 (2000)  
PUBMED [10751421](#)  
REFERENCE 13 (bases 1 to 4342)  
AUTHORS Hurskainen,T.L., Hirohata,S., Seldin,M.F. and Apte,S.S.  
TITLE ADAM-TS5, ADAM-TS6, and ADAM-TS7, novel members of a new family of  
zinc metalloproteases. General features and genomic distribution of  
the ADAM-TS family  
JOURNAL J. Biol. Chem. 274 (36), 25555-25563 (1999)  
PUBMED [10464288](#)  
REFERENCE 14 (bases 1 to 4342)  
AUTHORS Abbaszade,I., Liu,R.Q., Yang,F., Rosenfeld,S.A., Ross,O.H.,  
Link,J.R., Ellis,D.M., Tortorella,M.D., Pratta,M.A., Hollis,J.M.,  
Wynn,R., Duke,J.L., George,H.J., Hillman,M.C. Jr., Murphy,K.,  
Wiswall,B.H., Copeland,R.A., Decicco,C.P., Bruckner,R., Nagase,H.,  
Itoh,Y., Newton,R.C., Magolda,R.L., Trzaskos,J.M., Burn,T.C. et al.  
TITLE Cloning and characterization of ADAMTS11, an aggrecanase from the  
ADAMTS family  
JOURNAL J. Biol. Chem. 274 (33), 23443-23450 (1999)  
PUBMED [10438522](#)  
REFERENCE 15 (bases 1 to 4342)  
AUTHORS Tortorella,M.D., Burn,T.C., Pratta,M.A., Abbaszade,I., Hollis,J.M.,  
Liu,R., Rosenfeld,S.A., Copeland,R.A., Decicco,C.P., Wynn,R.,  
Rockwell,A., Yang,F., Duke,J.L., Solomon,K., George,H.,  
Bruckner,R., Nagase,H., Itoh,Y., Ellis,D.M., Ross,H., Wiswall,B.H.,  
Murphy,K., Hillman,M.C. Jr., Hollis,G.F., Arner,E.C. et al.  
TITLE Purification and cloning of aggrecanase-1: a member of the ADAMTS  
family of proteins  
JOURNAL Science 284 (5420), 1664-1666 (1999)  
PUBMED [10356395](#)  
REFERENCE 16 (bases 1 to 4342)  
AUTHORS Tang,B.L. and Hong,W.  
TITLE ADAMTS: a novel family of proteases with an ADAM protease domain  
and thrombospondin 1 repeats  
JOURNAL FEBS Lett. 445 (2-3), 223-225 (1999)  
PUBMED [10094461](#)  
COMMENT REVIEWED REFSEQ: This record has been curated by NCBI staff. The  
reference sequence was derived from [AL603427.1](#), [AB014588.1](#),  
[AF148213.1](#) and [AY358886.1](#).  
On Jan 26, 2004 this sequence version replaced [gi:11497610](#).

Summary: This gene encodes a disintegrin and metalloproteinase with thrombospondin motifs-4, which is a member of the ADAMTS protein family. Members of the family share several distinct protein modules, including a propeptide region, a metalloproteinase domain, a disintegrin-like domain, and a thrombospondin type 1 (TS) motif. Individual members of this family differ in the number of C-terminal TS motifs, and some have unique C-terminal domains. The enzyme encoded by this gene lacks a C-terminal TS motif. It is responsible for the degradation of aggrecan, a major proteoglycan of cartilage, and brevican, a brain-specific extracellular matrix protein. The cleavage of aggrecan and brevican suggests key roles of this enzyme in arthritic disease and in the central nervous system, potentially, in the progression of glioma.

COMPLETENESS: complete on the 3' end.

FEATURES

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